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B. From hydra-like young arising from eggs (Aurelia and Cyanea) and presenting the following phases of growth:—

1. Egg.
2. Morula (?)
3. Planula (Gastrula).
4. Scyphistoma.
5. Strobila.
6. Ephyra.
7. Aurelia (adult).

LITERATURE.

Nearly the same as for the Hydroids.

REVIEWS AND BOOK NOTICES.

HAYDEN'S GEOLOGY OF COLORADO.¹—Within this bulky volume of over seven hundred pages is contained a mass of geological, topographical and biological facts concerning Colorado, which it must be confessed reflect great credit on the management of the survey and the industry of the gentlemen employed upon it. Large appropriations have been made by the government for the survey, as accurate and timely information was wanted. We do not see but that ample and speedy returns have been made. The best possible topographical work was wanted, and the public have it from the best possible source. Information concerning the mines of Colorado is here given, while the bulk of the volume is taken up with the legitimate kind of work to be expected from such a survey. To this are to be added reports on the fossil animals and plants, and the living animals and plants of Colorado, thus making it a handbook for the general reader and traveller as well as scientist.

The geological and palæontological work (fossil plants as well as animals) and the living animals, are more fully illustrated than in former reports. The outline illustrations, showing the topography in combination with the geology, are admirable. We have

¹Annual Report of the United States Geological and Geographical Survey of the Territories, embracing Colorado, being a report of progress of the exploration for the year 1873. By F. V. Hayden, U. S. Geologist, Washington, D.C. 1874. 8vo. pp. 718. With maps and illustrations.

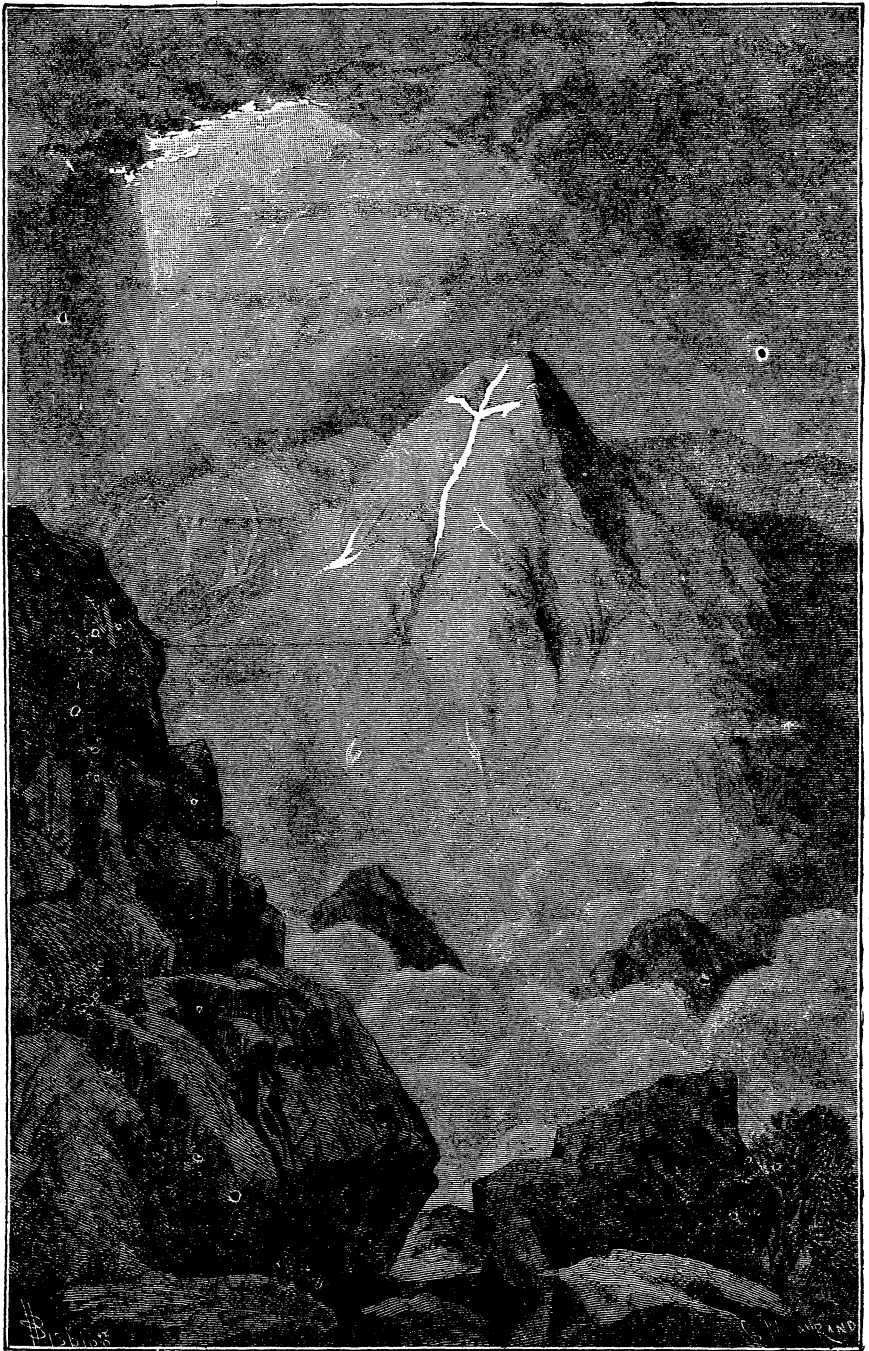
obtained clearer ideas than ever before of the scenic features of the Rocky Mountains.

The elevated plateau and mountains of Colorado have a unique interest to the naturalist. Most interesting questions in the distribution of life, both horizontal and vertical; the relation of the physical aspects of Colorado as compared with the plateaux of Asia and the mountains arising from them, will find a partial solution in the data given in this report.

In the first eighty pages Dr. Hayden describes the chief objects of geological interest from Denver to the south and middle parks. Some interesting facts are given concerning the ancient glaciers of Colorado. He says that there is evidence that the Arkansas valley was formerly filled with an enormous glacier with branches of greater or less magnitude, leaving lake basins, moraines and immense granite bowlders scattered over the surfaces. The figure² on page 177 is a view of the rounded and polished rocks in the valley of a stream which rises among a group of peaks of which the Mountain of the Holy Cross (Fig. 68) is the most conspicuous. "The mountains on either side rise to the height of 2,000 to 3,000 feet above the valley, and the glacial markings are visible 1,200 to 1,500 feet. The morainal deposits on the northwest side reach a height of 1,200 feet above the stream, and form a sort of irregular terrace, which, when cut through by the little side-streams, show that it is made up of gravel and bowlders much worn. In some instances there are well-worn cavities in the sides of the mountains, showing how the running water, in connection with a mass of rock, formed the cavity much as a 'pot hole' is made in our streams at the present time. Many of the 'sheep backs' are still covered with a crust-like enamel, but usually this has peeled off."

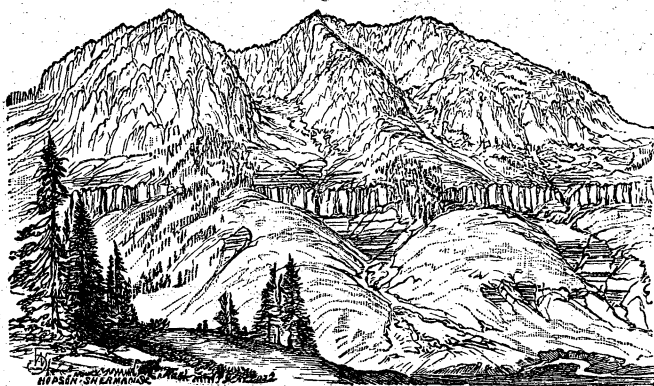
Returning to the Mountain of the Holy Cross, we are told that the main mass of the peak, like the whole of the Sawatch range, is composed of granite gneiss. The summit of the Holy Cross is covered with fragments of banded gneiss. The amphitheatres on all sides have been gradually excavated, as heretofore described, and the more or less vertical sides show the intermediate steps very clearly. The characteristic feature of the Mountain of the Holy Cross is the vertical face, nearly 3,000 feet on the side, with

² We are indebted to the courtesy of Dr. Hayden for the use of electrotypes of the accompanying figures.



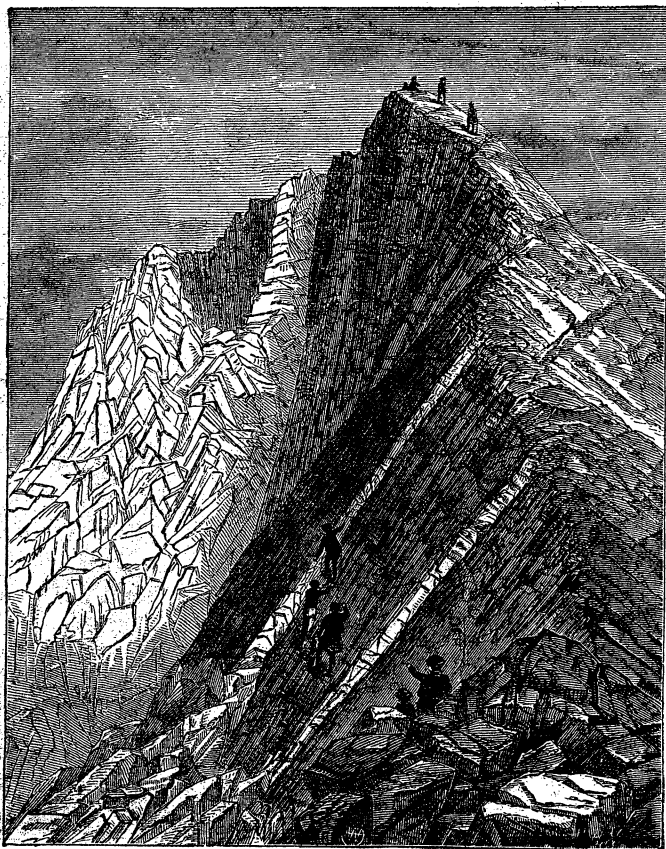
Mountain of the Holy Cross, Colorado.

Fig. 69.



Gothic Mountain, Elk Range, Colorado.

Fig. 70.



Italian Mountain, Colorado.

a cross of snow which may be seen at a distance of fifty to eighty miles from other mountain-peaks. This is formed by a vertical fissure about 1,500 feet high, with a sort of horizontal step, produced by the breaking down of the side of the mountain, on which the snow is lodged and remains more or less all the year. Late in the summer the cross is very much diminished in size by the melting of the snow which has accumulated in the fissures. A beautiful green lake lies at the base of the peak, almost up to

Fig. 71.



Rounded Rocks on Roches Montonnées Creek, Colorado.

timber line, which forms a reservoir for the waters from the melting snows of the high peaks."

The contrast of the volcanic peaks with the granite mountains is seen in the accompanying sketches of Gothic mountain (Fig. 69) and Italian mountains (Fig. 70).

The reports on the geology of special areas are by Messrs. Marvine, Peale and Endlich, and are fully illustrated with maps and sections. The report on fossil plants by Mr. Lesquereux contains valuable remarks on the age of the North American Lignitic formation, the climate of the North American Tertiary Period, ac-

accompanied by descriptions of a large number of new fossil plants. Prof. Cope's report on the fossil vertebrates of Colorado contains descriptions of several new species with eight lithographic plates illustrating them. The zoology of Colorado is treated of in papers by Lt. Carpenter, Baron Osten Sacken, Dr. Hagen, and Messrs. Ulke, Smith, Verrill, Binney, and Packard. The report on the geography and topography of Colorado, by Mr. James T. Gardiner, possesses a high degree of interest, and is an important contribution to American geography.

BOTANY.

THE LOTUS IN THE DETROIT RIVER. — Early in the summer of 1868, I attempted the introduction of the Lotus or Chincopin (*Nelumbium luteum* Willd.) into the Detroit River, by planting the seed in nine different places. In company with Mr. Richard Storrs Willis, I planted (May 2, 1868) some of the seed in three places in the Bayou, at his residence at Belle Isle. Mr. Willis subsequently informed me that one plant was the result of my sowing; but I do not know that it ever arrived at perfection. I have not known of my other locations resulting in even this partial success. But last summer, at a field meeting of the Detroit Scientific Association, at Grosse Isle, several of the flowers of this beautiful species were brought me for determination by Miss Douglass, who had discovered and gathered them the day before (August 11, 1874) in the Cannard River, Ontario (a tributary of the Detroit) opposite Grosse Isle. They may have been overlooked there a long time. The year previous a young lad had told of finding, in the Cannard, a water lily different from all others, which led to the above result.

A gentleman has also succeeded in growing the plants from seed in the Rouge River, which falls into the Detroit a few miles below the city. They blossomed for the first time last summer. Another friend, who sowed the seed a year or so ago, has had as yet no appearance of its growth. I am aware that it often takes years to germinate after planting. On August 12, 1872, a seed which I had planted in my aquarium, $4\frac{1}{2}$ years before, rose to the surface of the water in the act of germinating. It afterwards sank to the bottom, and settling in the mud, but not rooting, sent out a long shoot, which (leaf and petiole), on August 17, in 24 hours, grew $4\frac{1}{2}$ inches in length, the weather being very warm.